

Curriculum Vitae

John T. Crawford, Ph.D.

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EDUCATION

Ph.D., Freshwater and Marine Science, University of Wisconsin-Madison, 2014

M.Sc., Limnology & Marine Science, University of Wisconsin-Madison, 2012

B.A., Environmental Studies, University of Colorado-Boulder, 2010

summa cum laude

EMPLOYMENT

Research Ecologist, U.S. Geological Survey National Research Program, 2014-Present

Ecologist, U.S. Geological Survey, 2012-2014

Research Assistant, North Temperate Lakes LTER, Trout Lake Research Station, Wisconsin, 2012-2014

Graduate Instructor, University of Wisconsin-Madison, 2010-2012

Hydrologic Technician, U.S. Geological Survey NRP, 2010-2012

PUBLICATIONS

1. **Crawford J.T.**, Dornblaser M.M., Stanley E.H., Clow D.W., and Striegl R.G. (2015). Source limitation of carbon gas emissions in high-elevation mountain streams and lakes. *Journal of Geophysical Research-Biogeosciences*, DOI: 10.1002/2014JG002861
2. Watras, C.J., K.A. Morrison, **J.T. Crawford**, C.P. McDonald, S.K. Oliver, and P.C. Hanson, (2015), Diel cycles in the fluorescence of dissolved organic matter in dystrophic Wisconsin seepage lakes: Implications for carbon turnover, *Limnology and Oceanography*, 60(1), DOI: 10.1002/lno.10026
3. **Crawford J.T.**, Loken L.C., Casson N.J., Smith C., Stone A.G. and Winslow L.A. (2015), High-Speed Limnology: Using advanced sensors to investigate spatial variability in biogeochemistry and hydrology, *Environmental Science and Technology*, DOI: 10.1021/es504773x. (selected for American Chemical Society Editors' Choice, open access)
4. **Crawford J.T.**, and Stone A.G. (2014), Relationships between soil composition and *Spartina alterniflora* dieback in an Atlantic salt marsh, *Wetlands*, DOI 10.1007/s13157-014-0588-0.
5. Latzka A.W., **Crawford J.T.**, Krause A., Koblings A., Caldeira Y., Hilts E., and Vander Zanden M.J. (2014), Representing calcification in distribution models for aquatic invasive species: Surrogates perform as well as CaCO₃ saturation state, *Hydrobiologia*, DOI: 10.1007/s10750-014-2001-7
6. **Crawford J.T.**, Stanley E.H., Spawn S.A., Finlay J.C., Loken L.C., and Striegl R.G. (2014), Ebullitive methane emissions from oxygenated wetland streams, *Global Change Biology*, DOI: 10.1111/gcb.12614. (selected for cover art)

7. **Crawford J.T.** and Stanley E.H. (2014), Distinct fluvial patterns of a headwater stream network underlain by discontinuous permafrost, *Arctic, Antarctic and Alpine Research*, <http://dx.doi.org/10.1657/1938-4246-46.2.344>.
8. **Crawford J.T.**, Lottig, N.R., Stanley E.H., Walker J.F., Hanson P.C., Finlay J.C., and Striegl R.G. (2014), CO₂ and CH₄ emissions from streams in a lake-rich landscape: Patterns, controls and regional significance, *Global Biogeochemical Cycles*, DOI: 10.1002/2013GB004661.
9. Marín-Spiotta E., Gruley K.E., **Crawford J.T.**, Atkinson E.E., Miesel J.R., Greene S., Cardona-Correa C., and Spencer R. (2014), Paradigm shifts in soil organic matter research affect interpretations of aquatic carbon cycling: Transcending disciplinary and ecosystem boundaries, *Biogeochemistry*, DOI: 10.1007/s10533-013-9949-7.
10. **Crawford J.T.**, Striegl R.G., Wickland K.P., Dornblaser M.M. & Stanley E.H. (2013), Carbon dioxide and methane emissions from a headwater stream network of interior Alaska, *Journal of Geophysical Research*, DOI: 10.1002/jgrg.20034.
11. Stanley E.H., Powers S.M., Lottig N.R., Buffam I. & **Crawford J.T.** (2012), Contemporary changes in dissolved organic carbon of human-dominated rivers: Is there a role for DOC management? *Freshwater Biology*, DOI: 10.1111/j.1365-2427.2011.02613.x.

MANUSCRIPTS IN REVIEW

1. Stanley E.H., Casson N.J., Christel S., **Crawford J.T.**, Loken L.C., and Oliver S.K. (in revision). The ecology of methane in streams and rivers: patterns, controls, and global significance.
2. **Crawford J.T.** and Stanley E.H. (in review). Controls on methane concentrations and fluxes in streams draining human-dominated landscapes.
3. **Crawford J.T.**, Luke C. Loken, William E. West, Benjamin Crary, Seth A. Spawn, Nicholas Gubbins, Stuart E. Jones, Robert G. Striegl, and Emily H. Stanley (in review). The geomorphic template as a driver of spatial variability in lotic CH₄ concentrations.

MANUSCRIPTS IN PREP

1. **Crawford J.T.**, Dornblaser M.M., Stanley E.H., and Striegl R.G. (in prep). CO₂ Patterns in Contrasting Headwater Streams of the Northern Hemisphere.
2. **Crawford J.T.**, Loken L.C., Stanley E.H., Stets E.G., Dornblaser M.M., and Striegl R.G. (in prep). Eutrophication and sediments control greenhouse gas emissions from the Upper Mississippi River.

FUNDING AWARDED

Control of phosphorus and greenhouse gas flux by legacy sediments in agricultural streams (2015-2016), USGS National Research Program Topical Research Teams, Stets E.G., **Crawford J.T.**, Noe G., Skalak K.

AWARDS

Editors' Citation for Excellence in Refereeing - Journal of Geophysical Research Biogeosciences, 2014
 Exceptional Promise in Graduate Research Award, Ecological Society of America, 2014

Anna Grant Birge Memorial Award, University of Wisconsin-Madison, 2011, 2012 & 2013

Char Stein Award, University of Wisconsin-Madison, 2012

Dr. and Mrs. Carl A. Bunde Fund, University of Wisconsin-Madison Department of Zoology, 2011 & 2012

SELECTED ORAL PRESENTATIONS

1. **John T. Crawford** "Water Quality Sensors for Spatial Observations", 2015, National Science and Technology Council's Committee on Environment and Natural Resources, Washington D.C.
2. **John T. Crawford**, Emily Stanley, Mark Dornblaser, Jamie Shanley, and Rob Striegl, "Contrasting origins of inorganic carbon flux from headwater streams to the atmosphere", 2014, Joint Aquatic Sciences Meeting, Portland, OR
3. **John T. Crawford**, Noah Lottig, Emily Stanley, John Walker, Rob Striegl "Carbon gas emissions from small streams in a lake-rich landscape: the importance of groundwater and methane", 2012 American Geophysical Union Fall Meeting, San Francisco, CA
4. **John T. Crawford**, "Hydrologic controls on stream greenhouse gas emissions", 2012 LTER All Scientists Meeting, Graduate Student Symposium, Estes Park, CO
5. **John T. Crawford**, Amanda G. Stone and Benjamin Kraemer, "Relationships between soil properties and *Spartina alterniflora* dieback patchiness in an Atlantic salt marsh", 2012 Ecological Society of America, Portland, OR
6. **John T. Crawford**, Robert G. Striegl, Kimberly P. Wickland & Emily H. Stanley, "High Emissions of Carbon Gases from a Boreal Headwater Stream Network of Interior Alaska", 2011 American Geophysical Union Fall Meeting, San Francisco, CA

OTHER SELECTED PRESENTATIONS

- Crawford J.T.**, Loken L.C., Casson N.J., Stanley E.H., Striegl R.G., and Winslow L.A. "High-speed limnology: A sensor platform for investigating processes and spatial variability in hydrology and biogeochemistry", 2014, American Geophysical Union Fall Meeting, San Francisco, CA
- *Nicholas Gubbins, **J.T. Crawford**, E.H Stanley, "Gas exchange in small streams of Dane County", 2014, 3rd Science in the Northwoods Conference, Boulder Junction, WI
- *S. Spawn, **John T. Crawford**, Emily H. Stanley, "Stream sediment decomposition in contrasting glacial sand, peat and muck reaches of a wetland stream", 2013 American Geophysical Union Fall Meeting, San Francisco, CA
- John T. Crawford**, Emily H. Stanley, Seth A. Spawn, Robert G. Striegl, "Methane ebullition from contrasting stream sediments in a wetland catchment", 2013 American Geophysical Union Fall Meeting, San Francisco, CA
- John T. Crawford**, Noah Lottig, Emily Stanley, John Walker, Rob Striegl, "Greenhouse gas emissions from small streams in a lake-rich landscape: The importance of incorporating methane", 2012, LTER All Scientists Meeting, Estes Park, CO

*undergraduate presentation

PROFESSIONAL AFFILIATIONS

American Geophysical Union (AGU), Association for the Sciences of Limnology and Oceanography (ASLO), Ecological Society of America (ESA)

PROFESSIONAL SERVICE

Ad-hoc Journal Reviewer:

Limnology and Oceanography (1), *Geophysical Research Letters* (1), *Hydrological Processes* (2), *Ecosystems* (1), *Global Change Biology* (1), *Environmental Science and Technology* (4), *Journal of Geophysical Research-Biogeosciences* (7), *Freshwater Biology* (4), *Biogeosciences* (5), *Inland Waters* (1), *PLOS ONE* (1), *Journal of Limnology* (1), *Northwestern Naturalist* (1), *Water, Air, & Soil Pollution* (1), *Microbial Ecology* (1), *Annales de Limnologie - International Journal of Limnology* (1)

USGS Internal Manuscript Reviewer (2)

Proposal Reviewer: National Geographic Society

Session Co-Convener: 2013 AGU Fall Meeting, "Linking Landscape and Watershed Processes with Aquatic Ecosystem Functions, Services, and Sustainability"

Guest Lecturer: Yale School of Forestry and Environmental Studies, Advanced Reading in Biogeochemistry, February 2015

IN THE MEDIA

Coverage of "Ebullitive Methane Emissions from Oxygenated Wetland Streams" (*Global Change Biology*) in local and international outlets including: The Daily Mail (United Kingdom), Nature World News, Phys.org, Science World Report, WORT 89.9 FM (Madison, WI), Methanenet.org

FIELD EXPERIENCE

Amargosa Desert Research Site, low-level nuclear waste soil gas study, 2015

Upper Mississippi River Carbon and Nitrogen Surveys, 2014-2015

High-Speed Spatial Sampling, various rivers, streams and lakes, 2014-2015

Luquillo, Puerto Rico: March 2014

Panola Mountain, Georgia: August 2012 and February 2014

Rocky Mountain National Park, Colorado: June/July 2013

Sleepers River, Vermont: April, 2013

Trout Lake Research Station (NTL-LTER), Wisconsin: May-September 2012 and 2013

Nome Creek, Alaska: May-August 2010 and 2011

Niwot Ridge LTER, Colorado: June-August 2009

KEY SCIENTIFIC TOOLS

R statistical programming language -> <https://github.com/thejohncrawford>, database development/management (PostgreSQL, Access), geospatial analysis in ARC GIS 10, high-speed water quality mapping, ad hoc instrument (gizmo) manufacturing